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REMARKS

Claims 1-6, 8-10, 12-18, 20, 21 and 23 are currently pending in the subject application and are presently under consideration. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein.

I. Rejection of Claims 1-6, 8-10, 12-18, 20, 21, 23 Under 35 U.S.C. §103(a)

Claims 1-6, 8-10, 12-18, 20, 21, 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Brobst *et al.* (US 6,053,409) in view of Loya (US 5,559,320). It is respectfully requested that this rejection be withdrawn for at least the following reason. The cited references, either alone or in combination, fail to teach or suggest all features recited in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on the Applicant's disclosure. See *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicant's invention generally relates to a piezoelectric scan system. Independent claims 1, 15, 21 and 23 recite similar limitations, namely a piezoelectric scan system that uses *an arcuate reflective surface with variable shape that reflects light onto a beam expander with a generally cylindrical reflective surface*. Brobst *et al.* and Loya do not teach or suggest such novel aspects of the claimed invention.

Brobst *et al.* generally relates to a focusing apparatus for an optical imaging system using a deformable mirror. (See Brobst *et al.*, Abstract). Specifically, the cited reference relates to a

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system for scanning a barcode comprising a light source, a piezoelectric material arcuate reflector, a shape controlling system, and a beam expander that reflects a beam onto a target. However, as conceded by the Examiner in the subject Office Action at page 3, lines 7-8, Brobst *et al.* fails to suggest a beam expander with a cylindrical reflective outer surface.

The Examiner employs Loya in an attempt to cure the deficiencies of Brobst *et al.* by asserting that Loya teaches a scanning system comprising a scanning mirror in a form of a cylindrical shell or body having a plurality of reflective faces for reflecting/directing the scanning beam onto the target, the cylindrical shell or body also serves as a polished round pillar having a cylindrical reflective outer surface. Applicant's representative respectfully disagrees with such contentions – Loya does not teach a beam expander with a generally cylindrical reflective surface.

Loya relates to mounting and balancing system for rotating polygon mirror in a bar code scanner. (See Title, abstract, Figs 1-2, 5; generally throughout). More precisely, Loya describes a “[p]olygonal scanning mirror . . . [that] has reflective faces . . . on a generally hollow cylindrical shell or body[.]” (See Loya, col. 3, lines 54-56). Loya describes a “cylindrical support body . . . having a reflective coating on the plurality of . . . *planar mirror surfaces or faces*” (See Loya, col. 4, lines 48-51) (*emphasis added*). Attaching the planar mirror faces to the outer, curved surface of a cylindrical support body creates a cross-section of polygonal shape. The polygonal shape formed from the planar mirror surfaces circumscribes the circular cross-section of the cylindrical support body. Accordingly, Loya describes a plurality of planar mirror surfaces attached to the outside of a cylindrical support body with a resulting polygonal cross-section, NOT a polished round pillar having a cylindrical reflective outer surface.

Under the traditional meaning of the term, a polygon is not a circle. A polygon is defined as “1: a closed plane figure bounded by straight lines [or] 2: a closed figure on a sphere bounded by arcs of great circles.” See Webster's Ninth New Collegiate Dictionary 912 (1991). The claimed cylinder presents a circular cross-section. A circle is a planar shape bounded by curved arc lengths, not straight lines. Therefore, because a circle is a shape that is not bounded by straight lines, it does not fall within the standard definition of “polygon.”

Even if one considers a circle to be a polygon, Loya does not teach or suggest a beam expander with a circular cross section. The meaning Loya attaches to the terms “polygon” or “polygonal” must be interpreted in light of the meaning presented in Loya's specification. See

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Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367 (Fed. Cir. 2003). In the specification, Loya teaches a beam expander with a cross-section of a shape bounded by straight lines. Loya describes a preferred embodiment that involves "a polygonal scanning mirror . . . having a plurality of reflective facets or faces arranged about the outer circumference of a . . . cylindrical support body" (col. 2, lines 38-41). The shape of the cross-section is best illustrated in Fig. 5 and its description (col. 4, lines 52-65). In brief, the description states that a number of planar mirrors are attached to the outer, curved surface of a cylindrical polygon mirror support body, generating a cross-section of closed shape bounded by straight lines. The cross-sectional shape of a closed shape bounded by straight lines is clearly illustrated in Fig. 5. If Loya were to disclose a cylindrical shell or body that also serves as a polished round pillar having a cylindrical reflective outer surface as the Examiner contends, there would be no further need for the planar mirror faces attached to the cylindrical polygon mirror support body. Therefore, the specifications of Loya disclose only a generally polygonal reflective outer surface, NOT a generally cylindrical reflective outer surface.

On the other hand, the applicants' specification describes the claimed cylindrical beam expander as "a polished round pillar" (page 14, line 14). More precisely, the specification describes the reflective outer surface of the claimed cylindrical beam expander as "arcuate" (page 14, line 15). The traditional meaning of the term "arcuate" is "curved like a bow." See Webster's Ninth New Collegiate Dictionary 101 (1991). A circle is a planar shape bounded by curved arc lengths. The applicants' specifications describe a claimed beam expander that has a cross-section of a shape bounded by curved arc lengths, NOT a shape bounded by straight lines. Therefore, the claimed beam expander has a generally cylindrical reflective outer surface, NOT a generally polygonal reflective outer surface as disclosed by Loya.

There is a significant distinction between light reflected off of a flat reflective surface (such as a planar mirror surface disclosed by Loya) and light reflected off of an arcuate reflective surface (such as the claimed cylindrical beam expander). Flat reflective surfaces (like the planar mirror surfaces disclosed by Loya) cause incoming parallel beams of light to change direction, but once reflected, the beams of light remain parallel. On the other hand, convex arcuate reflective surfaces (like the claimed cylindrical reflective surface) cause parallel beams of light to diverge with the apparent intersection occurring behind the surface. Divergent light beams reflected from a convex arcuate reflective surface cover a broader angular range than parallel

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light beams reflected from a flat reflective surface. Thus the reflected light from a cylindrical reflective outer surface has very different optical properties than reflected light from a generally polygonal reflective outer surface.

In view of at least the foregoing, it is readily apparent that the cited references fail to make obvious applicant's invention as recited in the subject claims, and this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [TELNP202USA].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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